Physical Review D - Particles, Fields, Gravitation and Cosmology 2014 vol.90 N10

Ultrahigh energy particle collisions near many-dimensional black holes: General approach

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Abstract

© 2014 American Physical Society. If two particles moving towards a black hole collide near the horizon, their energy in the center-of-mass frame can grow unbounded. This is the so-called Bañados-Silk-West effect. Previously, it was shown that in the 3+1 space-time, this effect has a universal nature. We show that for a wide class of many-dimensional black holes (including, say, the Myers-Perry black hole), this is also true. The suggested analysis is general and does not require special properties of the metric like separability of variables for geodesics, etc.

http://dx.doi.org/10.1103/PhysRevD.90.107503